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Practitioners' Perception of Skills in Effective Project Management

Manouchehr Tabatabaei

Michael Cuellar

Jason Williams

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Manouchehr Tabatabaei
Georgia Southern University
mtabatab@georgiasouthern.edu

Michael Cuellar
Georgia Southern University
mcuellar@georgiasouthern.edu

Jason A. Williams
Georgia Southern University
jwilliams@georgiasouthern.edu

ABSTRACT

Since good project managers (PMs) are in high demand and short supply, employers are placing increasing pressure on higher education to better prepare students to contribute to project teams and assume PM positions. However, PMs' perceived importance and perception of which skills are important for success among working professionals has not received much attention. As educators aspire to prepare students for the PM positions and their challenges, they should be aware of the perceptions of working professionals who have experience with many projects successful or not about the important and necessary skills in successfully completion of a project. This proposed research seeks to understand how practicing PM professionals view the relative importance of various technical project management skills. This research will help align PM course offerings to PM technical skills.

Keywords

Project Managers, Project Management, Project Management Importance, Project Management Skills

INTRODUCTION

The importance of project management is increasing in general and in computing education in particular; e.g., Computer Science (CS), Software Engineering (SE), Information Systems (IS) and Information Technology (IT). Historically, the demand for project managers has been strong (Herzberg 2006) and Project Management Institute (PMI) reports that currently there is a dramatic increase in the number of jobs requiring project management skills especially in developing countries with overall job growth expected to be around 33% (Project.Management.Institute 2017b). This is particularly true because the demand for capable team and project managers to lead information technology (IT) acquisition, development, and implementation projects is increasing. Additionally, the demand for new entrants into project management is increased by the large number of PM professionals retiring from the workforce (ibid). PMI additionally predicts that over the next decade, demand for project managers will outstrip the demand for other professions (ibid).

The steady increase in IT project investments has continuously increased the importance of PM skills as billions spent on IT projects in the US each year and PM skills are necessary and contribute to reducing IT project failures (Capell 2001; Reif and Mitri 2005). The increase in importance of PM skills coupled with short supplies of effective project managers have also motivated organizations to turn to the PMI for project management training and certification programs.

Therefore, the increased value placed on PM knowledge and skills by practitioners is well documented (Carbone and Gholston 2004; Qi and Maoshan 2019; Wateridge 1997). However, PM's perceived importance and perception of which technical skills are important for success among working professionals has not received much attention.

This proposed research seeks to understand how practicing project management professionals view the relative importance of various technical project management related skills. It also wants to assess whether the academic project management class is providing those skills to students and giving them the appropriate impartation of the importance

of those skills and of project management. The practical implication of this research is to design a more effective PM course.

LITERATURE REVIEW

Technical project management skills are recognized as important skills for project managers (Keil et al. 2013). These technical project management skills have been shown to be important to project success (Keil et al. 2013; Napier et al. 2009).

We define technical project management skills as "knowledge, skills and behaviors related to specific domains of project management" (Project Management Institute 2019a). Among others, these skills include planning, budgeting, risk analysis, and gathering lessons learned. In their Delphi study of practicing PMs, Keil and colleagues (2013) said this category included the skills to "effectively plan, monitor and control the project while managing the scope, resources and risks to ensure that the project is completed on time and within budget. This skill category also includes knowledge and experience of the tools and techniques used in project management" (p. 402). Technical PM skills do not include "soft" skills such as "people skills," communication skills, or team management skills (Keil et al. 2013).

We searched IS/IT project management literature for project management technical skills. Unsurprisingly, there were no papers that focused on exclusively on PM technical skills. Several papers researched skills considering project success as the dependent variable, again focusing on soft skills (e.g. Iriarte and Orè 2017). Because of the limited number of scientific papers on technical PM skills, we included practitioner literature to ensure a full list of PM technical skills could be compiled. Our source of PM technical skills was *A Guide to the Project Management Body of Knowledge (PMBOK Guide)* (Project Management Institute 2017).

The primary purpose of this research is to fill this gap in the academic research stream. We seek to gain insights into working professional perceptions of the technical skills project managers should possess. The findings should shed light on what makes a good project manager and the skills and qualifications of an effective IT project manager in the minds of professionals. The secondary objective of this endeavor is to assess whether perceptions of professionals are influenced by demographics; e.g., Education Level, Work Experience, Major Projects Involvement, Project Management Certificate, Nationality, Gender and Age. The demographics also include project characteristics (approach/methodology used, team size, role on the team, Virtual/Co-Located).

METHODOLOGY

Research Subjects

We will be performing a survey of experienced working professionals to answer the research questions. We need to understand from working professionals their perceptions of the importance of project management and the key skills needed for effective project management. The participants are experienced working professionals including members of the PMI which is a global nonprofit professional organization for project management. PMI is a membership organization that aims to provide members with the tools and network they need to make a difference as project managers and succeed in their careers.

Data Collection Methodology

We begin by surveying the members of the local PMI chapter. Consent has already been received from the chapter. We will be contacting each of the members via email requesting participation and directing them via a hyperlink to a Qualtrics-based survey.

The survey instrument will include three components: Demographics; Project Management Importance; and Project Management Skills. First, we will assess perception of the importance of the project management in the academic program by practitioners. The items are derived from the skills and competencies of effective project managers identified by the Project Management Institute (PMI) and PMBOK (Project.Management.Institute 2017a), and those identified in the literature (Baker et al. 1988; Bigelow 2000; Brill et al. 2006; Milosevic 2003; White 2002). They will be assessed as seven-point Likert scale items from strongly agree (7) to strongly disagree (1) for each question of this component. The items are listed in Table 1.

Knowledge of Project Management is important in general.
Knowledge of Project Management will have a positive impact on career.
Knowledge of Project Management will have a positive impact on personal life.
Project Management certificate is important to have.
Graduate education in Project Management is recommended.

Table 1: List of Items to Assess the Importance of Project Management

The second part of the survey requests the respondents to provide their perception of the importance of a list of technical PM skills. This list is informed by the *PMBOK* and literature as described above. The preliminary list of items is shown in Table 2. Although all skills below may be found in the *PMBOK*, we include scholarly sources for skills where possible. Professional project managers will be asked "Please identify how much you used the following skills in your recent completed projects" and "Please identify how much the skills below contributed to the success of your completed recent projects" for each of the following skills. Respondents will report their perceptions on a Likert-like scale with anchor terms "Very Little" to "Very Much."

Skill	Source
Project planning	Keil et al. (2013)
Project management tool skills	Keil et al. (2013)
Project chartering	Keil et al. (2013)
Cost management/control	Keil et al. (2013; Napier et al. (2009)
Perform change control	*PMBOK*
Gather lessons learned	*PMBOK*
Collecting requirements	*PMBOK*
Creating a work breakdown structure (WBS)	*PMBOK*
Measuring quality	*PMBOK*
Qualitative risk assessment	*PMBOK*
Quantitative risk assessment	*PMBOK*
Estimating activity durations	*PMBOK*
Developing a schedule	*PMBOK*
Determining a budget	*PMBOK*
Estimating costs	*PMBOK*
Conducting procurements	*PMBOK*

Table 2: List of Skills

Data Analysis Methodology

We will analyze and report on the importance of PM topic in general (Table 1) by the practitioners. This should show how the working professionals value PM.

We will analyze each skill listed in Table 2for significance and will rank the skills based on the responses of experienced working professionals. This ranking should show the common skills needed in effective project management. Further analyses will be conducted for the secondary objective of this research to determine if perceptions of professionals about the importance of project management and skills are influenced by demographics (participants and project characteristics).This will allow us to see if there are differences in working professionals due to different demographic factors and project characteristics. Finally, drawing conclusions based on the overall findings on the perceptions of working professionals about the importance and necessary skills needed in effective project management.

CONCLUSIONS, LIMITATIONS AND FUTURE WORK

This research will help to understand the PM skills that are important and valued by industry which consequently should help in design and development of more effective PM courses. This research will provide a beginning to a stream of research into an area of PM skills that has received little attention in scholarly literature. We anticipate that this study will provide direction for future research and will provide guidance for the structuring of topics in the undergraduate project management course. The future research will include survey of students and educators in addition to practitioners. The sample size and the number of participants can be a potential limitation of this research.

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